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study the childhood of Lincoln; Lincoln moving from Kentucky to Indiana, and later to Illinois; his work in building the house; his farm work. By pictures the children will show this part of Lincoln's life to the school.

Geography.—The corn and wheat belt of the United States. Pictures, and maps modeled in sand and chalk will be used. The Mississippi valley will be studied as a typical river valley.

Manual training.—Making of a doll's bed, a boat, and a game-target with darts. The children have finished one piece of work for the schoolroom, presents for Christmas, and have now been allowed to choose something to make for themselves.

Clay-modeling.—The third grade will make jars for growing flowers, and will present these, if they are well made, to the different rooms in the school, where they will be needed in the spring for the work in germination. Drawings and designs in color will be made before the modeling begins.

Literature.—Fairy stories; stories from Greek mythology—Theseus, Hercules, and Ulysses.

Reading.—For continued reading, Cook's *Story of Ulysses*.

REFERENCES: Reading list for the children — Fruits: "Central America," "Florida," "California," *North America*, Carpenter's *Geographical Reader*; "A Trip into the Interior," *South America*, *ibid.*; Tarr and McMurry, "Western States," *North America*; Frye, *Primary Geography*, p. 80; *Natural Educational Geography*, p. 62.

Vegetables: Dana, "Roots and Underground Stem," *Plants and Their Children*.

Farm life: "Jack and Joe," "Little Brown Hands," "My Vacation," *Second Reader*, "Stepping Stones to Literature"; Parker, *Uncle Robert's Geography*, Book II; Moneith, *Familiar Animals*,

The farm lands of the United States: *North America*, chaps. xx, xxi, xxii, Carpenter's *Geographical Reader*.

Lincoln: Baldwin. *Four Great Americans*; Cravens, *The Story of Lincoln*.

FOURTH GRADE.

GERTRUDE VAN HOESEN.

REVIEW FOR NOVEMBER AND DECEMBER.

IN our search for a farm near Chicago with a dairy that we might visit the last week in October, we could not find one where more butter was made than the farmer's family needed. In every case the farmer shipped his milk into Chicago, and devoted his time to raising corn, oats, and hay, especially the last.

In order to ascertain whether there was a good reason for having no dairy, the children of the fourth grade did the work described below. It is described in detail in accordance with

the plan of the teacher hereafter to treat in this way some one subject in each review. Lack of space obviously precludes a similar treatment of all the work that is done.

BUTTER-MAKING.

Each of the sixteen pupils in the class was to have a pint of milk, but through a misunderstanding the milkman left only fifteen pints, so that two of the children had only a half-pint each. Each pupil weighed his pint of milk and recorded the weight. In order to find the weight of the milk, he had to weigh a pan, pour the milk into it, weigh again, and subtract the weight of the pan from the weight of the pan and milk. A record of this was kept by each child for the whole class, for later he would need it for reference. The making of the record necessitated the working, by each pupil, of sixteen problems in subtraction of decimals, the children being taught to write tenths as decimals instead of common fractions.

The records of the work of the pupils follow. Only enough explanation is added to make them intelligible:

WEIGHT OF MILK USED.

	Pan.	Pan and Milk.	Milk.
Lewis.....	415.5 gr.	949.5 gr.	534 gr.
Lawrence	411	939.2	528.2
Mabel.....	375.4	880.8	505.4
Ella	396	870	474
Carl	373.2	863.1	489.9
Harriet.....	370.5	910.2	539.7
Ralph.....	405	866	461
Arthur.....	391.2	919	527.8
Walton.....	401.3	913.5	512.2
Norman	386.5	676.4 ($\frac{1}{2}$ pt.)	289.9
Marjorie	378	850	472
William.....	380.5	833.4	452.9
Ernest.....	421.8	890.1	468.3
Olive	390.2	841.4	451.2
Joe.....	348	811	463
Barrett.....	414.3	673.1	258.8

— Mabel Whitney.

After finding the weight of the milk, the class decided to form four committees, each of four members. The members of each committee put their milk together in a large pan, thinking that with a larger quantity the skimming would be more economical and they would get better cream. To find the weight of the milk set away, the five following problems in the addition of decimals were necessary, although some of the children proved their work at once by adding all the weights:

Committee 1.		Recapitulation.	
Marjorie	472 gr.	Committee 1	1,992.8 gr.
Harriet.....	539.7	Committee 2	1,932.3
William.....	452.9	Committee 3	1,892.7
Lawrence.....	528.2	Committee 4	1,610.5
	1,992.8 gr.	Total weight.....	7,428.3 gr.
Committee 2.		Proof.	
Ella	474 gr.	Weight.....	472 gr.
Joe	463	"	539.7
Mabel.....	505.4	"	452.9
Carl	489.9	"	528.2
	1,932.3 gr.	"	474
Committee 3.		"	463
Olive	451.2 gr.	"	505.4
Ralph	461	"	489.9
Walton.....	512.2	"	451.2
Ernest	468.3	"	461
	1,892.7 gr.	"	512.2
Committee 4.		"	468.3
Barrett.....	258.8 gr.	"	258.8
Norman.....	289.9	"	289.9
Lewis.....	534	"	534
Arthur.....	527.8	"	527.8
	1,610.5 gr.	Total weight.....	7,428.3 gr.

—Ella Bishop.

The next morning the milk was skimmed, measured, and weighed. It measured $1\frac{1}{2}$ pints, and weighed 768.5 grams. This is how the weight of the cream was found:

$$\begin{array}{rl} \text{Weight of cream and cup} & \dots \dots \dots 1,159.5 \text{ gr.} \\ \text{Weight of cup} & \dots \dots \dots 391 \\ \hline \text{Weight of cream} & \dots \dots \dots 768.5 \text{ gr.} \end{array}$$

Problems.—1. You had 15 pints of milk and got $1\frac{1}{2}$ pints of cream. What part of your milk was cream? Exactly $\frac{1}{10}$, by measurement.

2. If the milk weighed 7,428.3 grams and the cream 768.5 grams, what part of your milk was cream? $\frac{1}{10}$, approximately.

3. What is the weight of the skimmed milk?

4. How many pints or quarts of skimmed milk are there?

One and one-half pints of cream being too small a quantity from which to make butter, we decided to get enough more to make a gallon. How shall we get it, by buying milk or cream?

Problems.—1. How much more cream is needed?

2. How much milk will you have to buy to get that quantity of cream?

As we found that we could not properly care for the quantity of milk necessary to furnish the cream we wanted, we decided to buy the cream. It was allowed to stand twenty-four hours and was then churned, the temperature of

the churn and cream being recorded. The children knew what the temperature ought to be, for they were guided by directions from experts.

As each child took his turn at churning—a hundred strokes at a time—the rest of the class made cottage cheese from the skimmed milk left over from the fifteen pints. In their excitement when the butter came the pupils failed to weigh the cheese. In their study of food constituents they will again make cheese in individual quantities, but no butter.

The butter, when worked over, weighed $1\frac{1}{3}$ pounds, or 795 grams. Instantly one child asked: "Then how much will a pound weigh?" This problem was solved as follows.

$$1\frac{1}{4} \text{ lbs.} = \frac{7}{4} \text{ lbs.} \quad \frac{1}{4} \text{ lb. weighs } \frac{1}{7} \text{ of } 795 \text{ gr.} = 113\frac{1}{7} \text{ gr.}$$

$$\frac{1}{4}, \text{ or } 1, \text{ lb. weighs } 4 \times 113\frac{1}{7} \text{ gr.} = 454\frac{2}{7} \text{ gr.}$$

The result varied 453.6 grams from the standard table. Inaccuracy in weighing, the children concluded, probably accounted for the difference.

Problems.—1. If your butter weighs 795 grams, what part of your cream is butter? To find this answer the children found the weight of cream. If $1\frac{1}{2}$ pints of cream weigh 768.5 grams, what did your gallon weigh?

2. What part of your milk is butter?
3. What is the weight of the buttermilk?
4. If you had bought $1\frac{3}{4}$ pounds of butter at \$0.30 a pound, what would it have cost at \$0.52 $\frac{1}{2}$ a pound?
5. At \$0.12 a pint, how much did you pay for the cream you used? \$0.96.
6. If you had bought 10 gallons of milk, which are necessary to furnish 1 gallon of cream, what would the milk have cost at \$0.07 a quart?

$$4 \times \$0.07 = \$0.28 \text{ per gal. } 10 \times \$0.28 = \$2.80.$$

7. Why does the farmer sell his milk instead of making it into butter?

Some of the butter, and the cheese, the children served at luncheon. The remainder of the butter they used in making the Christmas candy for the University Settlement. The buttermilk was served by them to anyone in the school who wished it.

This work, which grew out of a geographical excursion, might be called present-day industrial history. It is science; and to carry it out, arithmetic was absolutely essential. The pleasure and the sustained interest of every child during the entire work were due to the fact that at every step each took an individual, active part, for the report of which he was responsible to a committee or to the whole class. Of necessity the writing in connection with this work was important, for the records of it demanded both legibility and accuracy. As already stated, it was not possible to visit a dairy, but through reading and pictures the class got some idea of butter-making as an industry.

Another piece of work in which scales were used grew out of making grape jelly. After making this jelly, the question came up: "Could we make the same amount of jelly from an equal amount of different fruits?" The pupils agreed that this depended upon the amount of juice or water in the fruit, but they disagreed as to the amount of water that the various fruits contained. They therefore did the work as described below by two of them. Each child selected a fruit, weighed out fifty grams on a plate, and set it on the radiator. The dates on the record show how often the fruit was weighed. After a discussion, it was decided that when the fruit weighed the same for two consecutive days it would be thoroughly dry.

November 8.—Weight of plate, 169 grams.

Weight of grapes, 50 grams.

Weight of plate and grapes, 219 grams.

November 12.—Weight of plate and grapes, 208 grams.

My grapes have lost 11 grams.

$219 \text{ grams} - 208 \text{ grams} = 11 \text{ grams}$, loss.

November 13.—Weight of plate and grapes, 206.6 grams.

My grapes have lost 12.4 grams.

$219 \text{ grams} - 206.6 \text{ grams} = 12.4 \text{ grams}$, loss.

November 20.—Weight of plate and grapes, 180.4 grams.

My grapes have lost 38.6 grams.

$219 \text{ grams} - 180.4 \text{ grams} = 38.6 \text{ grams}$, loss.

November 21.—Weight of plate and grapes, 180 grams.

My grapes have lost 39 grams.

$219 \text{ grams} - 180 \text{ grams} = 39 \text{ grams}$, loss.

My grapes now weigh 11 grams.

November 26.—Weight of plate and grapes, 180 grams.

My grapes have lost 39 grams.

$219 \text{ grams} - 180 \text{ grams} = 39 \text{ grams}$, loss.

My grapes now weigh 11 grams.

39 grams of my grapes were water, because water dries, and that 39 grams dried.

11 grams of my grapes are solid matter.

—Lewis Norton.

November 8.—Weight of plate, 176.3 grams.

Weight of apple, 50 grams.

Weight of plate and apple, 226.3 grams.

November 12.—Weight of plate and apple, 186.9 grams.

My apple has lost 39.4 grams.

$226.3 \text{ grams} - 186.9 \text{ grams} = 39.4 \text{ grams}$, loss.

November 13.—Weight of plate and apple, 185.6 grams.

My apple has lost 40.7 grams.

$226.3 \text{ grams} - 185.6 \text{ grams} = 40.7 \text{ grams}$, loss.

November 20.—Weight of plate and apple, 184.7 grams.

My apple has lost 41.6 grams.

226.3 grams — 184.7 grams = 41.6 grams, loss.

November 21.—Weight of plate and apple, 184 grams.

My apple has lost 42.3 grams.

226.3 grams — 184 grams = 42.3 grams, loss.

My apple weighs 7.7 grams.

November 26.—Weight of plate and apple, 184 grams.

My apple has lost 42.3 grams.

226.3 grams — 184 grams = 42.3 grams, loss.

My apple weighs 7.7 grams now.

No loss since last weight.

How much of your apple was water? 42.3 grams was water.
How do you know? Because it has lost 42.3 grams. It can't lose solid matter.

How much is solid matter? 7.7 grams are solid matter.

Why? Because what is gone was water, and water evaporates.

December 2.—Weight of plate and apple, 183.9 grams.

My apple has lost 42.4 grams.

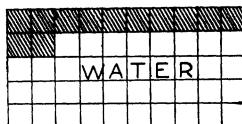
226.3 grams — 183.9 grams = 42.4 grams.

First weight of apple, 50 grams — 42.4 grams = 7.6 grams, final weight.

—Laurence Vansant.

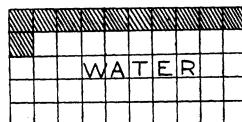
The report on the banana showed that 38 grams out of 50 evaporated. By means of diagrams the pupils indicated the proportion of water and solid matter contained in the different fruits:

50 grams of bananas.



Solid matter, 12 grams = $\frac{1}{5}$
Water, 38 " = $\frac{4}{5}$

50 grams of grapes.



Solid matter, 11 grams = $\frac{1}{5}$
Water, 39 " = $\frac{4}{5}$

50 grams of apples.



Solid matter, 7.6 grams = almost $\frac{8}{5}$
Water, 42.4 " = more than $\frac{8}{5}$

Problems.—1. How many grams of each fruit are water? How many grams are solid matter?

2. What part of each fruit is water? solid matter? From which could the greatest amount of jelly be procured?

The jelly has not yet been made.

A report is here given, as promised in December, of the preparation and serving of the daily luncheon:

The fourth grade prepared, served, and paid for the cocoa or soup for one week to the first, second, and third grades, and for one week to the third grade alone, our class-rooms not being large enough to accommodate comfortably the pupils of three grades.

During the other two weeks the fourth grade was entertained by other grades. The committees served as described in the December number.

At the end of the two weeks for which the fourth grade was responsible, the pupils made up the accounts as follows, and each child paid his share of the expense:

First Luncheon. For Four Grades.

6 quarts of milk @ 6 cents	-	-	-	-	\$0.36
2 milk tickets @ \$1.00	-	-	-	-	2.00
4 cans of cocoa @ 20 cents	-	-	-	-	.80
6 pounds of sugar @ 5 cents	-	-	-	-	.30
Total cost	-	-	-	-	\$3.46
15	\$3.46		\$0.23 $\frac{1}{15}$	for each child in the fourth grade.	
38	\$3.46		\$0.09 $\frac{1}{15}$	per child.	

Second Luncheon. For Two Grades.

17 $\frac{1}{2}$ quarts of milk @ 6 $\frac{1}{4}$ cents	-	-	-	-	\$1.09 $\frac{2}{3}$
2 cans of cocoa @ 20 cents	-	-	-	-	.40
5 pounds of sugar @ 5 cents	-	-	-	-	.25
Total cost	-	-	-	-	\$1.74 $\frac{2}{3}$
16	\$1.74		\$0.10 $\frac{2}{3}$, or \$0.11,	for each child in the fourth grade.	
28	\$1.74		\$0.06 $\frac{2}{3}$	per child.	

The cooking consisted in learning to prepare soups and cocoa to be served at luncheon. Before going to the cooking-room the full recipe is written on the blackboard, and each child makes his individual recipe. So far it has been one-fourth of the full recipe. When ready, the pupils go to the cooking-room, and they follow the recipe with as little direction as possible. When each pupil has finished his soup or cocoa, it is all put together and served.

The following are the recipes that were given to the children :

COCOA (FOR FOUR).

- 1 $\frac{1}{2}$ tablespoons of prepared cocoa.
- 2 tablespoons of sugar.
- 2 cups of boiling water.
- 2 cups of scalded milk.
- A few grains of salt.

Directions: Scald milk. Mix cocoa and sugar. Add the boiling water gradually, and boil one minute. Turn into the scalded milk. Add salt and beat with a Dover egg-beater.

CREAM OF TOMATO SOUP (FOR FOUR).

- 1 can of tomatoes.
- 1 pint of milk.
- 4 tablespoons of flour.
- 2 tablespoons of butter.
- 1 teaspoon of salt.

Directions: Cook the tomatoes until soft. Thicken and strain. Cool and add the cold milk. Heat and serve.

POTATO SOUP (FOR FOUR).

- 6 potatoes.
- 1 quart of milk.
- 2 tablespoons of butter.
- 2 tablespoons of flour.
- 1 $\frac{1}{2}$ teaspoons of salt.
- $\frac{1}{4}$ teaspoon of celery salt.

Directions: Cook potatoes in boiling salted water, and mash. Scald milk and thicken. Add the mashed potato and strain. Reheat and season.

Below are the recipes which the pupils prepared individually and took to the cooking-room :

COCOA (ONE-HALF OF THE LARGE RECIPE).

- $\frac{3}{8}$ tablespoon of prepared cocoa.
- 1 tablespoon of sugar.
- 1 cup of boiling water.
- 1 cup of scalded milk.
- A pinch of salt.

Directions: Same as above.

The next day the problem given the class was to make enough cocoa to serve to the third and fourth grades for luncheon. Only two of the children were to do the cooking, the remainder being on other committees. There are twenty-eight children in the two grades. With the first recipe as a basis, they saw that they must take seven times the quantity of each ingredient. With their own recipes as a basis, they must take fourteen times as much. As there were often visitors, we decided to make enough for thirty persons, or fifteen times their own recipes.

In every case the children made their own recipes, often having to interpret the given recipe in terms of the measuring utensils in the cooking-room. The recipe for the tomato soup illustrates this point:

TOMATO SOUP (ONE-FOURTH OF LARGE RECIPE).

I cup of tomatoes.

$\frac{1}{2}$ cup of milk.

1 tablespoon of flour.

$\frac{1}{2}$ tablespoon of butter.

$\frac{1}{4}$ teaspoon of salt.

Directions: Cook the tomatoes until soft. Rub the butter and flour into a ball. Add to the cooked tomatoes and cook one minute. Strain and cool. Add the cold milk. Season, reheat, and serve.

The account book mentioned in October is kept in this manner:

Each child brings \$1 the first day of each month, to cover all expenses, such as paper, pencils, painting materials, soup or cocoa for luncheon, excursions. The first supply of materials had been bought before this plan was put into operation. It has been very successful, and the children are thoughtful about spending their money and careful about materials. The money is kept in individual boxes within a large tin box, called the bank. The accounts for November and December of two of the pupils are subjoined:

NOVEMBER.

Nov. 1	Money received	\$1	00		Nov.	Luncheons	\$0	23
	Money spent		23					
	Balance	\$0	77					

DECEMBER.

History.—In history, we followed carefully the explorations of La Salle down the Mississippi, studying the natives and the country, and especially the effects of these explorations upon Chicago. *Pioneer Stories of the Middle West*, by McMurry, we used for reading.

Manual training and clay-modeling.—The handwork for Christmas formed an important part of the December work. The children made baskets, picture panels, and book-racks, in wood, and modeled vases, in clay.

French.—The French has been correlated with the other work, especially with the preparation and serving of the luncheons, the games, and the celebration of holidays. In the Thanksgiving exercises, which Miss Fleming has described in the December number, the fourth grade took part in "A Vintage Custom of France," and played "Sur le pont d'Avignon" (see October number). For the Christmas exercises the grade dramatized a Christmas custom of southern France. For this dramatization all the pupils learned the French Christmas song "Bethlehem" (see COURSE OF STUDY, Vol. I, p. 374), and three learned the dialogue as printed below:

LA VEILLE DE NOËL DANS LE MIDI DE LA FRANCE.

(La table est dressée devant le foyer, où pétille un vieux tronc d'arbre.)

Personnages: Le père, la mère, le petit garçon.

Le père. Avant de nous mettre à table, ayons la bénédiction.

La mère. Viens, mon enfant, agenouille-toi devant le feu et sous ma dictée tu feras la prière de Noël.

(L'enfant s'agenouille devant le feu et répète mot à mot.)

L'enfant. Je te supplie de réchauffer pendant l'hiver les pieds des petits orphelins, de répandre la chaleur et la clarté dans toutes les mansardes.

(Le père prend un gobelet, le remplit de vin et le donne à l'enfant.)

Le père. Maintenant arrose le feu.

(Le petit l'arrose de cette libation de vin. On entend les chanteurs de Noël.)

Les chanteurs. A Béthléem, quand l'enfant vint à naître, quoiqu'il fit nuit, le ciel était brillant, et l'on vit apparaître un astre éblouissant, qui conduisait les mages d'Orient.

La mère. Ouvre-leur la porte, mon cheri.

L'enfant. Entrez, chanteurs. Il fait chaud ici: nous avons une belle galette.

(La dame de Noël entre. Elle porte une robe blanche; un voile blanc, recouvert d'étoiles dorées, l'enveloppe entièrement; elle tient à la main une baguette dorée au bout de laquelle se trouve une brillante étoile. Les trois mages d'Orient la suivent. Ils portent de grands chapeaux de carton blanc, recouvert d'étoiles dorées. Un des mages représente l'Afrique, le Maure; un autre l'Asie, et un troisième l'Europe. Ensuite viennent les bergers, les pauvres paysans etc. Les paysans tiennent à la main des chandelles allumées. Un des paysans tient une cloche. Il sonne. [La dame de Noël est toujours annoncée par la cloche.] Toute la bande se met à chanter.)

A Béthléem, etc.

(L'enfant prend la galette, la galette qui fait la joie de son cœur. Il se met à genou devant la dame de Noël et la lui présente.)

L'enfant. Belle dame, prenez ma galette de Noël.

OUTLINE FOR JANUARY.

The general subject for January will be "Prehension of Food." It is a subject in which all children are intensely interested, and it presents to them an entirely new phase of animal life. The work will consist of a comparative study of man and animal life in this particular, and will be directed somewhat as follows :

- (1) Study of child's organs of prehension : (a) arm, (b) hand, (c) teeth.
- (2) Comparison of child with squirrel (there are two squirrels in the school).
- (3) A general study of rodents—especially the rat, rabbit, and beaver.
- (4) An excursion to the zoo in Lincoln Park to compare the other animals with man and rodents.
- (5) Each child will select some animal to be modeled in clay in the act of catching its food. This will make necessary the particular study of the prehensile organs of the animal selected.
- (6) A comparative study of rodents, herbivora, carnivora, etc., often visiting the Field Columbian Museum to examine stuffed specimens and skeletons.

Oral reading.—The *Jungle Book* and Ernest Seton-Thompson's books will be used for both silent and oral reading, because they bring the animals before the children in an entirely different light. The pupils will dramatize "How Mowgli was Taken into the Pack," from the *Jungle Book*.

Geography.—The hunting grounds of man will form the basis for the geography (see Miss Baber's outline in the January number). By means of stereopticon views, pictures, and reading matter, the children will be led to feel, if possible, the life of the hunter in the mountains, on the plains, and along the coasts. After building up an image of the region under consideration, the formation will be studied with reference to action by rain, river, and glacier.

History.—During the last two months the fourth grade has been studying the visit of Marquette, Joliet, and La Salle to Chicago, and the appearance of Chicago at that time. In January we will come back to the Chicago of today, and study its means of transportation, its bridges, and its streets, and the growth of the city in these particulars from the time of Marquette to the present time.

TRANSPORTATION.

Local transportation : (1) elevated railroad; (2) electric car; (3) cable car; (4) horse car; (5) automobile. What advantage has one over the others? What has been the order of development? Why did one displace

the other? A study of the mechanical principle involved in the motive power of each. Excursions to the Field Columbian Museum to see the first means of urban transportation, and to the different power-houses, will help to a better understanding of present-day motive power. The building of the car lines.

Continental transportation.—By means of railroad maps, let the children see the great number of railroads which go out of Chicago. Number of trains arriving and leaving per day—both freight and passenger. What does a first-class passenger train consist of? Excursions to the Pullman car shops to see the cars in the process of construction, and to depots, railway yards, and round-houses to examine coaches, parlor cars, sleeping cars, dining cars, baggage cars, mail cars, freight cars, refrigerator cars, engines. A visit to the docks and an inspection of some of the lake boats will give some idea of the lake transportation.

The development of the transportation of Chicago: (1) canoe, (2) sail-boat, (3) prairie schooner, etc.

The Field Columbian Museum has a most interesting collection of the modes of transportation in all countries, from the most primitive to the most perfect. Pictures of the transportation in Venice.

BRIDGES.

A careful study of the bridges of Chicago, with special regard to their mechanism. The bridge of today. Compare, by means of pictures and reading matter, the most recent with the famous ones of the Old World, both in construction and material.

STREETS.

The evolution of the streets of Chicago from Indian trails to asphalt pavements. Compare with the streets of some of our other American cities, and with those in cities of the Old World, paying special attention to drainage and sewerage as affecting them.

Literature.—*The Story of Siegfried*, continued. The children are now dramatizing “The Forging of Balmung.” When completed, it will be published in the ELEMENTARY SCHOOL TEACHER AND COURSE OF STUDY.

Textiles.—Fitting up the work-baskets and making, by each pupil, of two cooking-aprons and one apron for the clay-room.

OUTLINE FOR FEBRUARY.

During January the use of iron in the construction of the large buildings and bridges in Chicago will have been very apparent. For February we shall choose for the fourth grade, as the general subject, “The Mining and Manufacture of Iron.”

Mining regions: How iron is discovered. In what form is it found? How mined? How smelted and prepared for use? How is it exposed in

mountainous regions by river action? This brings us back to a consideration of river action from a point of view different from that considered in geography in January. Compare mining in the mountains with mining on the plains. Difference between placer and hydraulic mining. What determines the method?

Make a study of ores. In what rocks are the different metals found? Examine metals under the microscope and observe crystalline formation. What explains the formation and deposition of crystals? Make a study of crystals, using all kinds of materials that will dissolve and recrystallize. The history of the use of metals.

The fourth grade will begin to use copper in making small articles, or in ornamenting their work in wood. Why is copper much easier to work with than brass or iron? Effect of heat on each? At first the children will only answer these questions as it becomes necessary in their work.

Textiles.—Same as January.

FIFTH GRADE.

HARRIET T. B. ATWOOD.

REVIEW FOR DECEMBER.

History, literature.—After the Thanksgiving festival, the work taken up was that outlined in the December number, Topics III and V, under "History." The manner of government of the New England colonies was discussed, and the public life of a citizen of a typical New England town pictured. The children read of the establishment of village schools and the founding of Harvard College, and also the stories of Blackstone, Winthrop, Eliot, and Williams. The study of Longfellow's *Courtship of Miles Standish* and of Austin's *Standish of Standish* was continued throughout December.

Dramatic art, music.—At the approach of the Christmas festival the children looked up the subject of Christmas celebration in other times and countries. After discussing the attitude of the Pilgrims and Puritans toward the celebration of Christmas, they read descriptions of Christmas festivals in some of the other English colonies and in old England. At the Christmas party given by the school the fifth-grade children were costumed as waits, and they sang two of the old English songs: "The Christmas Tree" and "The Host and His Guests." In addition to this they learned the following Christmas songs: "Old Christmas," "Gather Around the Christmas Tree," "Portuguese Hymn," and "We Three Kings of Orient."

The children studied and read orally Longfellow's "Three Kings," and Miss Fleming interpreted for them Dickens's *Christmas Carol*.

Nature study.—1. In addition to the daily observations of temperature, rainfall, and direction of wind during December, frequent observations were